

## **DATA INPUT DEVICE AND METHOD FOR DETECTING LIFT-OFF FROM A TRACKING SURFACE BY LASER DOPPLER SELF-MIXING EFFECTS**

### **ABSTRACT**

A data input device for use with a tracking surface having light-scattering properties. The device comprises a single laser configured to project a light beam onto the tracking surface. A portion of the light beam striking the tracking surface reflects back into a cavity of the laser and thereby alters at least one characteristic of the projected light beam. A detector associated with the laser detects the altered characteristic of the light beam projected by the laser. A controller responsive to the detector determines the relative distance between the device and the tracking surface as a function of the altered characteristic of the projected light beam detected by the detector. Another device comprises a laser projecting a light beam oriented substantially perpendicular to the tracking surface when the device is operating in a tracking mode.